Evaluation ,Classification and Weighting of Medication Errors from an industry perspective

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On behalf of EFPIA

- Medication errors, broadly defined as any error in the prescribing, dispensing, or administration of a drug, irrespective of whether such errors lead to adverse consequences or not

- They are the single most preventable cause of patient harm

Medication Errors - Causes

Medication errors generally involve a failure to uphold one or more of the five "rights" of medication use.

**right patient** → **right drug** → **right dose** → **right route** → **right time**

In addition to the core five rights, the following may also represent medication errors:

- dose omission
- dispensing or use of expired medication
- use of medication past the recommended in-use date
- dispensing or use of an improperly stored medication
- use of an adulterated dosage form or administration technique inconsistent with the medication's labeling (e.g., Core Data Sheet, SPC, Investigators Brochure, local label, protocol)
- shared use of cartridges and/or prefilled pens

efpia* Medication Errors During Drug Development

- The likelihood of medication errors or possible sources of medication errors is considered during development

- Examples of things that industry has to think about
  - Invented Name (consider and research potential drug name confusion)
  - Presentation (size/shape/colouring), as well as the packaging
  - Instructions for use e.g. reconstitution, parenteral routes of administration, dose calculation
  - Situations where medication errors have the potential for serious sequelae if administered by the wrong dose or incorrect route
  - Whether to be used by visually impaired population
  - Consideration of the potential for accidental ingestion by children
  - Labelling – readability
  - Human factors testing (devices) and Failure Modes and Effects Analysis
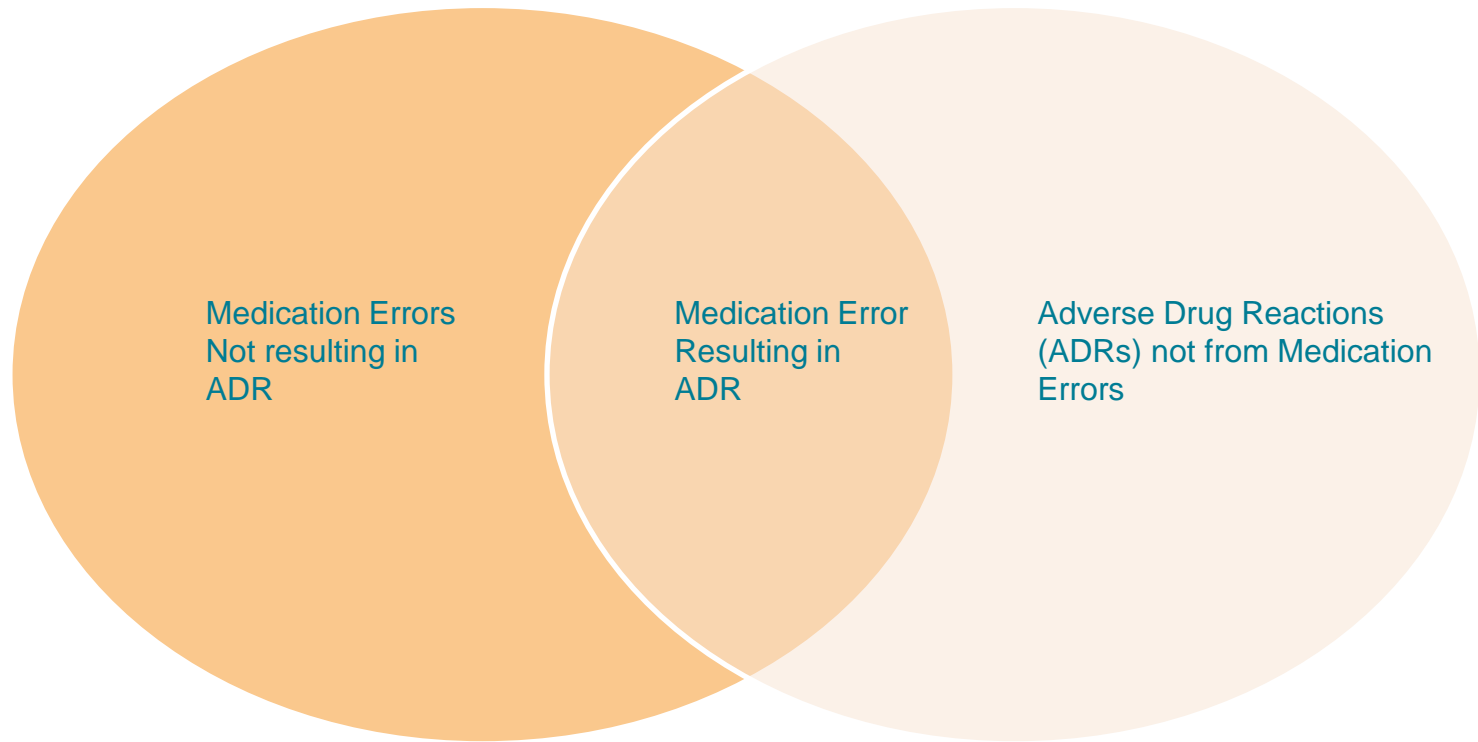
What could possibly go wrong?
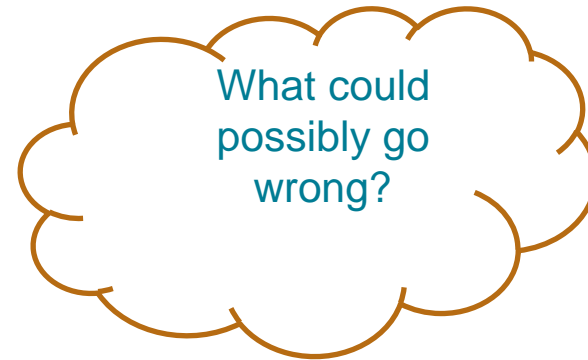
- Discuss in Risk Management Plan
  - information on the errors
  - potential cause of the error
  - possible remedies
  - how these have been taken into account in the final product design
- Conduct risk minimisation activities as appropriate
- Update the above with post-marketing experience as relevant

Medication Errors - Post Marketing

- Adverse reactions may arise from use of the product within or outside the terms of the marketing authorisation or from occupational exposure [DIR 2001/83/EC Art 101(1)]. Conditions of use outside the marketing authorisation include off-label use, overdose, misuse, abuse and medication errors. (GVP Annex 1)

- NB: no specific definition of medication error in definitions Annex 1

Medication error refers to any unintentional error in the prescribing, dispensing, or administration of a medicinal product while in the control of the healthcare professional, patient or consumer.

What we Collect

- Medication errors or near misses (including dispensing errors, accidental exposure, maladministration, etc.) whether or not associated with an adverse event

Medication Errors and Adverse Drug Reactions

Medication Errors
Not resulting in
ADR

Medication Error
Resulting in
ADR

Adverse Drug Reactions
(ADRs) not from Medication
Errors

How we classify the events

- Code 'verbatim' using closest term
- MedDRA Term Selection: Points To Consider - *Based on MedDRA Version 15.1*
- 3.15 – **Medication/Administration Errors and Accidental Exposures**

Reports of medication errors may or may not include information about clinical consequences.

- 3.15.1 –Medication error reported with clinical consequences

   If a medication error is reported with clinical consequences, select terms for both the medication error and the clinical consequences.

- 3.15.2 –Medication error reported without clinical consequences

   Medication errors without clinical consequences are not AR/AEs. However, it is important to record the occurrence or potential occurrence of a medication error. Select a term that is closest to the description of the medication error reported

How we classify the events

3.18 – Device-related Terms

3.18.1 Device-related event reported with clinical consequences

If available, select a term that reflects both the device-related event and the clinical consequence, if so reported.

Example

Reported	LLT Selected
Ventricular tachycardia due to malfunction of device	Device malfunction Ventricular tachycardia
Partial denture fractured leading to tooth pain	Dental prosthesis breakage Tooth pain

3.18.2 Device-related event reported without clinical consequences

If a device-related event is reported in the absence of clinical consequences, select the appropriate term.

Example of Vaccine Medication Errors

Category	Examples/Comments
DOSING	Overdose /Underdose /Extra dose /Wrong vaccine given
SCHEDULE	Shortening or lengthening/ mix of brand names
ADMINISTRATION ISSUE	Incorrect route of admin./ Incorrect administration /Accidental exposure of eyes, skin../ Incorrect preparation / Technical issues
COLD CHAIN AND STORAGE	Incorrect storage /Expired vaccine admin./ Incorrect seasonal Flu admin.

Coding dilemmas :

Vaccine case where patient received dose 1 and dose 2 one month apart as indicated, but reporter stated "but now it is close to 20 months later and patient has not yet received dose 3". Are we required to capture this case as delayed administration knowing that schedule is 0, 1 and 6 months schedule ?

What we report

- According to the European Legislation and according to the Guideline on Good Pharmacovigilance Practices (Module VI – Management and reporting of adverse reactions to medicinal products, 22 June 2012

VI.B.6.3. Reports of overdose, abuse, off-label use, misuse, medication error or occupational exposure

Reports of overdose, abuse, off-label use, misuse, medication error or occupational exposure with no associated adverse reaction should not be reported as ICSRs. They should be considered in periodic safety update reports as applicable.

When those reports constitute safety issues impacting on the risk-benefit balance of the medicinal product, they should be notified to the competent authorities in accordance with the recommendations provided in VI.C.2.2.6.

How do we detect signals?

- Challenging to retrieve and categorise medication errors because they come under approximately15-20 terms

    -maladministration

    -drug error

    -wrong dose

      etc..

- Medication errors are retrieved with maladministration reports etc . Necessitates review of individual case to categorize them in the appropriate 'bucket'

Example of investigation of name Confusion

- **Company database:** 'Name confusion errors scattered across different Preferred Terms (PTs): - "Medication monitoring errors; Medication errors NEC; Maladministration; Drug name confusion; Drug administration error; Wrong drug administered; Drug dispensing error; Product quality issue"

- **Disproportionality analysis**
  - No signal detected: ? Related to different PT of interest not being combined

- Need to consult external data source eg. MEDMARX

MEDMARX

- Is an anonymous, health care facility subscription-based, voluntary reporting program in US and Canada
  - healthcare facilities: hospitals, clinics, outpatient pharmacies affiliated with hospitals), long term care facilities
- Enables participating facilities to collect, analyze, anonymously compare and disseminate their data
- Contains ~ 2 million medication error records with 50,000 ADRs
- Process: Drug pairs of interest
  - Choose data fields of interest- Date of error, facility of record; Description of actual/potential error; Possible cause of error; Harm Category of error; Location of/staff that made initial error; action taken to avoid error, etc
  - Reports – in pdf narrative format; excel spread sheet, error pair analysis- NCC Harm category

Conclusion
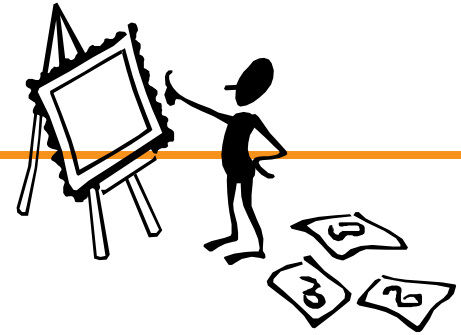
- Industry have procedures in place for identifying medication errors at all stages of drug development

- The incidence of medication errors varies widely as a result of differing definitions and methodologies

- Industry only see a subset of medication errors

- The problems, sources and methods of avoiding medication errors are multifactorial and multidisciplinary

Recommendations

- Create a clear definition of medication error, so that patients, prescribers, manufacturers, and regulators can all understand each other

- Improve granularity of coding and retrieval of Medication Errors by enhancing MedDRA

- A non-punitive approach should be adopted to improve the rate of reporting of medication errors and collate in a single database allowing further investigation of these important causes of preventable patient harm

- Give industry access to the database so we can detect signals earlier from a wider data source